

Dental insurance: A systematic review

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Abstract

To review uses of finance in dentistry. A search of 25 electronic databases and World Wide Web was conducted. Relevant journals were hand searched and further information was requested from authors. Inclusion criteria were a predefined hierarchy of evidence and objectives. Study validity was assessed with checklists. Two reviewers independently screened sources, extracted data, and assessed validity. Insurance has come of ages and has become the mainstay of payment in many developed countries. So much so that all the alternative forms of payment which originated as an alternative to fee for service now depend on insurance at one point or the other. Fee for service is still the major form of payment in many developing countries including India. It is preferred in many instances since the payment is made immediately.

Key words: *Dentistry, finance, insurance, payment*

INTRODUCTION

Health has been declared as fundamental human right. Oral health is an integral part of general health and, therefore, can be rightly called as the gateway of the body. The prohibitive cost of dentistry has been the main hindrance which deprives people of availing the services.^[1]

The increased cost of health care is due to the public's increasing demand for health services, ever growing technology of health care, lack of incentives in health care, higher quality of health care, and general inflation. As marked increase in the expenditure of public funds for healthcare services in all industrialized countries occurred, new methods of providing services evolved.^[1]

In developing countries like India, fee for service is still the major type of payment mechanism. Very few

people can afford to utilize this service regularly. Most of the people will visit dentists only for curative services occasionally. Preventive measures are not given much importance due to high cost, and hence, the percentage of population availing dental services has remained low. An attempt has been made here to review various types of payment mechanisms existing in different countries.

Fee for service was the first mode of payment to the dentist with respect to the services received. It co-existed with dentistry and was the main type of payment for many years until the other forms of payment came into existence.^[1]

1945- Start of voluntary prepaid comprehensive dental care in St. Louis, USA

1948- Establishment in England of a National Insurance Scheme including Comprehensive Dental Service

1948- Bisell B. Palmer of New York City founded group health dental insurance as open-panel pre-payment system.

1949- Group Health Association, a consumer cooperative in Washington, established a clinic dental service, which soon changed from fee-for-service basis to prepayment.

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1954- Washington State Dental Council organized Washington State Dental Services Corporation for helping administer prepayment dental care plan for children of International Longshoreman’s Union Pacific Maritime Association. This mechanism was soon found to be the best form of rendering dental care.

1966- Medicare brought medical care to the aged of the US without regard to the income. This did not include dentistry, but Medicaid did.

1973- Health Maintenance Organization Act was passed which provided government support for organizations providing standardized comprehensive care to the individuals in enrolled groups.

1989- Delta Dental Plan and other agencies were covering about 107 million beneficiaries.

However, fee for service continues to be the major mechanism of payment in many developing countries.^[2]

MATERIALS AND METHODS

All epidemiological studies (cross-sectional, case-control, cohort and clinical trials) involving health insurance, dental fainceance, oral health care delivery system were considered eligible for the present review.

Study selection was conducted in two phases: (1) Abstracts and titles were selected and (2) full texts of the selected titles were obtained and read to determine the final sample set. Only studies published in English language were considered due to the virtual absence of research published in other languages as resulted from preliminary electronic database searches.

The choice of key words was intended to be broad to collect as much relevant data as possible without relying on electronic means alone to refine the search results. The titles of the articles retrieved were searched manually or electronically. After that, electronic search of the abstracts and full texts was performed to identify relevant articles. Also, the references of each article were thoroughly inspected for more possible candidates. The resulting articles were then subjected to clear inclusion and exclusion criteria by two reviewers.

Literature search

The electronic search was carried out in PubMed, Cochrane Library and google scholar databases, and papers dated between December 1951 and December 2012 were selected. Based on the aim of the present

systematic review, in the following Table 1 search descriptors were used together.

Selection of studies and data extraction

Studies retrieved from the databases were selected after reading the abstracts and titles, following a calibration exercise with 10% of the studies read by reviewers to determine interexaminer agreement (Kappa: 0.68 to 0.97). Disagreements were resolved by consensus. Reviews were included, and their reference lists were searched in turn for any studies not retrieved by the electronic search. However, this process yielded no further studies.

Information sources and search

The following electronic databases were searched: Medline, Embase®, The Cochrane Library and Google Scholar®. Two preliminary searches were conducted in June 2011 to obtain an overall idea of findings and to polish searching terms (MeSH words) and limits. No topic related nor relevant finding resulted from both The Cochrane Library and Google Scholar®; these electronic databases were therefore excluded from final Boolean search. Final search was conducted on January 30th, 2013. Reference lists of included and relevant papers were reviewed. Abstract was collected for all findings.

Eligibility criteria

Protocol for this review was the PRISMA 2009 checklist (available at www.prisma-statement.org).

Included studies

- Clearly described objective, methods and results, with no significant discrepancies
- Case reports, case series, outbreak investigations and abstracts were excluded
- The study design was a cohort, cross-sectional, case-control
- Articles were reviewed for relevance
- Inter-rater reliability of relevancy ratings was determined since more than one reviewer was used
- All articles were rated for each category in the validity tool. Categories and examples of items in each include:

Table 1: Search strategy
PubMed, Cochrane Library and Google scholar databases between year 1951 and 2012
Health insurance, health care delivery systems across the world (And)
Dental insurance, oral health care delivery system globally, fainceance in dentistry

- a. Study design (included: cohort, cross-sectional, case-control)
- b. Data collection method and method of handling the data. (included variables, e.g., description of tools, pretesting of tools, use of self-report, assessment/screening tools pretested for validity, reliability).

Investigator screened all collected findings and registered title, author and whole reference in two Excel files (one for included and one for excluded findings, according to eligibility criteria) using a screening guide created on eligibility criteria. Kind of source was registered as reason for exclusion. Duplicates from different electronic databases were excluded. The full text of all studies judged potentially eligible in at least one screening were retrieved. Then, investigator screened the full text for inclusion using a screening guide and all findings.

Evaluation of scientific articles

The articles relevant for study which met the inclusion criteria were rated as strong (0), moderate (3), weak (9), and very weak (16). Validity scores indicated whether a study met the reviewer's criteria for research rigor.

RESULTS

A total of 766 potentially relevant records were found in the seven databases, 56 of which were duplicated. Thus, the abstracts of 587 studies were read. A total of 400 references were excluded based on the abstracts, and 65 were selected for full-text analysis, 14 of which were selected for inclusion. No clinical trials were found by the searches, although all caution was taken to try to find them. For this reason, no clinical trials are considered in this review.

One study was on social insurance for dental care in Iran. Results reported around 90% of Iranians are covered for health insurance within a Bismarckian system to which the employed, the employers, and the government contribute.^[3]

Commercial insurance companies

The year 1929 is generally credited as marking the birth of modern health insurance. It was in this year that Justin Ford Kimball established a hospital insurance program at the Baylor University Hospital for the school teachers of Dallas, Texas. The program was an immediate success and the concept of health insurance spread to other parts as well.^[4]

Insurance principles and dental care

During the years after World War-II, when medical insurance was growing rapidly, dental care was one of the “fearful” four areas of health care (dental care, psychiatric care, prescription drugs, and long-term care) considered uninsurable by carriers.^[5] This reasoning was based on the assumption that the very nature of dental need violated the basic principles of insurance.

Since 1948, UK has a state-financed public oral healthcare system within the National Health Service (NHS). Nearly 85% of the UK dentists work within the General Dental Services (GDS). Vast majority treat patients both within the NHS and part privately. All oral health care within the NHS is free for under 18 years, students under 19 years, pregnant mothers, unemployed, low-income persons, and inpatients in hospitals. Other NHS patients pay 80% of their fees up to EUR 500; above this figure they pay nothing. In 2001, dentists received payment from the NHS through a combination of capitation and fees for item of treatment for patients aged 0–17 years. Capitation covers prevention, simple fillings, and extractions. Crowns, dentures, and orthodontics are paid for on a fee item basis. Twenty-four percent of adult patients receive some or all of their dental treatment under private arrangements.^[6]

Almost 7 million people or 16% of the total population of South Africa are covered by third-party insurance and make use of the private sector for their health services. The remaining 84% or 38 million people are dependent on the state for their health services.^[7]

Dentistry in India has been growing at a rapid pace and, in fact, has taken the lead, as from a mere three dental colleges in 1947, now after 50 years, there are more than 200 dental institutes all over India and almost 12,000 people with BDS degree. Many oral health surveys have been done, and the prevalence rates of various oral diseases in the population are dental caries (40–45%), periodontal diseases (advanced disease in 40%), malocclusion (30% of children), oral cancer (12.6 per lakh population), dental fluorosis endemic in 230 districts of 19 states, and edentulousness (tooth loss) in 19–32% of elderly population above 65 years.^[8]

There is no reliable data on the oral health situation in India. Sporadic studies suggest a rising level of dental diseases in India. Since gaining independence in 1947, health system has evolved over the years. It is clear that India is an overpopulated country with a large percentage of the population below the poverty

line. As per dental manpower committee report of the Dental Council of India, there are approximately 44,000 dentists for a population more than 100 million, with a dentist population ratio of 1:30,000 in urban areas and 1:150,000 in rural areas. It has been well established that preventive programs are very cost-effective and advantageous for fighting oral diseases.

Non-profit health service corporations

The history of the dental service corporation movement began in 1954, when representatives of the health and welfare fund jointly administered by the International Longshoremen and Warehousemen's Union and the Pacific Maritime Association approached the organized dental profession on the West coast to see about instituting an experimental dental care program for the children of the union members. As a result of subsequent discussions that year, the Washington State Dental Association sponsored the formation of the first not-for-profit dental service corporation which was called Washington State Dental Service. As of 1969, there were 27 active dental service plans in the United States providing prepaid dental care coverage to approximately 2 million Americans.

Reimbursement of dentists in Delta Dental Plans

Delta Dental Plans at first used the Usual, Customary and Reasonable (UCR) fee-for-service concept almost exclusively, and this method of payment still dominates. Under the fee-for-service programs, the way in which a dentist is reimbursed depends on whether the dentist is participating or non-participating (often referred to as "par" and "no-par" dentists) with Delta. A participating dentist is one who has entered into a contractual agreement to provide care to eligible persons. Non-participating dentists can also treat patients covered under Delta Dental Plans and be reimbursed by Delta. They do not need to prefile their fees and are not subject to fee audits or withholding. However, non-participating dentists are usually paid at the 50th percentile of fees, rather than at the 90th percentile.^[9]

Health maintenance organizations (HMO'S)

The first prototype health maintenance organization (HMO) was developed in the Elk city, Oklahoma, in the early 1920s. In the latter 1930s, the development of the Kaiser system began. The Kaiser development started essentially as a method to provide healthcare services to workers (building the Grand Coulee Dam which did not have access to medical care). Kaiser was the largest of the HMOs in the nation at that time and served 13 states with a total enrollment close to 5 million.^[10,11]

Medicare

Medicare was brought into being because the voluntary health insurance system was unable to provide adequately for people over age 65 since the income of persons aged 65 and older is usually considerably less than those in the employed population and, therefore, have limited funds to spend on health care.^[12]

Medicaid

Creation of Medicaid and Medicare by enactment of the Social Security Amendments of 1965 established a major role for the Federal Government in financing health care. Medicaid title XIX is a federally assisted state program which offers health benefits to low-income persons on public assistance and, in some states, to those deemed medically needy because their incomes are only slightly above the welfare standards. Depending upon the per capita income of a state's population, the federal government pays between 50 and 78% of the costs of the state's Medicaid program.

DISCUSSION

The most serious defect of the studies was the lack of appropriate design and analysis. Many studies did not present an analysis at all. There are limited numbers of studies on dental financing system, so it was difficult to correlate different studies.

The use of dental care is low relative to the existing need mainly because of the cost of services rendered. Dental prepayment programs are, therefore, considered an effective mechanism for extending dental services to more people. Third-party payment for dental services is, therefore, payment to the dentist by an agency rather than directly by the patient. The third party is sometimes called the carrier, insurer, underwriter, or administrative agent. Usually, however, the term third party, without further qualification, refers to a private carrier such as an insurance company; when the government acts as a third party, the term most commonly used is public financing of care.

A study done on social insurance for dental care in Iran^[3] concluded that the dental sector of Iranian social insurance should establish a strategic purchasing plan for dental care with the aim of improving performance and access to care. Around 90% of Iranians are covered for health insurance within a Bismarckian system to which the employed, the employers, and the government contribute. The system has developed piecemeal over the years and is characterized by a complexity of revenue

collection schemes, fragmented insurance pools, and passive purchasing of dental services.

Another study conducted in South Africa^[13] concluded that South Africa compares unfavorably with middle-income countries on the ratios of medical and dental professionals; many districts have limited access to specialists and subspecialists. The unacceptable ratio of doctors, dentists, and other health professionals per capita needs to be remedied, given South Africa's impressive reputation for its output of health professionals, including the areas of medical training, clinical practice, and clinical research. The existing output from South Africa's eight medical schools of MB ChB and specialist graduates is not being absorbed into the public health system, and neither are other health professionals.

Oral health care is mainly financed by government-regulated or compulsory social insurance in seven countries, viz. Austria, Belgium, France, Germany, Luxembourg, The Netherlands, and Switzerland.^[14] Providing universal or near-universal coverage by membership of insurance institutions, these systems provide oral health care for about 180 million people across Europe and to almost half of all EU citizens. In the Nordic countries^[15] and the UK, entitlement to care is typically based upon residence or citizenship, and apart from in Norway and Iceland it is provided within a tax-funded and government-organized health service. In southern Europe, Norway, Ireland, and Iceland, oral health care is largely financed directly by the patient, with occasional support through private insurance. Some publicly funded and organized services do exist in these countries, but generally only for specific population groups (e.g. children, unemployed) or in particular regions.

CONCLUSION

- It has been stated earlier that fee for service was the first form of payment that existed from the beginning
- However, due to the problems faced by the patients in coughing up the cost of the treatment at a single shot, other forms of payment which intended to give a breathing space for the patients came into existence
- Different forms of payment have their own set of rules and regulations which the member (patient) had to strictly adhere to, if he was to receive the benefits of the program. Therefore, the freedom was entirely the patient's to understand and enroll in a program which he thought was beneficial for him
- Insurance has come of ages and has become the

mainstay of payment in many developed countries. So much so that all the alternative forms of payment which originated as an alternative to fee for service now depend on insurance at one point or the other

- However, fee for service is still the major form of payment in many developing countries including ours. It is preferred in many instances since the payment is made immediately.

An attempt has been made here to illustrate all the available forms of payments. One could not universalize a single form of payment considering the diversifying factors that govern dentistry as well as human nature. Ultimately, it is entirely up to the dentist and his patient to work out the most suitable form of payment in which each could be happy and satisfied.

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